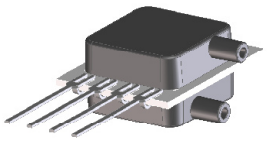
Miniature Basic Pressure Sensors

Offset Compensated
Pressure Sensors



Features

- 0 to 1 “H2O to 0 to 30 “H2O Pressure Ranges
- 0.5 % linearity
- Offset Compensated

Applications

- Medical Instrumentation
- Environmental Controls
- HVAC

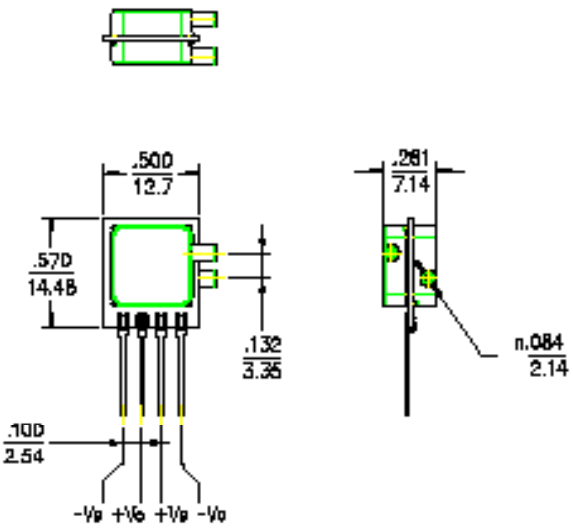
General Description

The Miniature BASIC series pressure sensors are based upon a proprietary technology to reduce the size of the sensor and yet maintain a high level of performance. The technology is currently being patented. Output offset errors due to change in temperature, stability to warm-up, stability to long time period, and position sensitivity are all significantly reduced when compared to conventional compensation methods. In addition the sensor utilizes a silicon, micromachined, stress concentration enhanced structure to provide a very linear output to measured pressure.

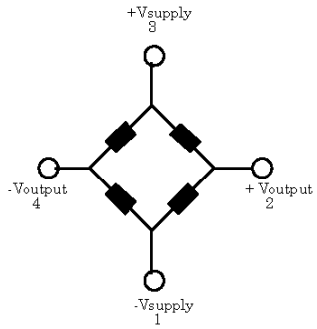
These offset compensated sensors give an accurate and stable output over a wide temperature range. This series is intended for use with non-corrosive, non-ionic working fluids such as air, dry gases and the like.

The output of the device is ratiometric to the supply voltage and operation from any D.C. supply voltage up to +6V is acceptable.

Physical Dimensions



Equivalent Circuit



Input Resittance	1.66 k ohm
Output Resistance	1.66 k ohm
TCR	2600 ppm/°C
TCS	-2200 ppm/°C.

Approvals

MKT DATE	MFG DATE	ENG DATE	QA DATE
☐ As Is ☐ With Change	☐ As Is ☐ With Change	☐ As Is ☐ With Change	☐ As Is ☐ With Change

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Pressure Sensor Characteristics Maximum Ratings

Supply Supply Voltage VS	6 Vdc
Common-mode pressure	5 psig
Lead Temperature (soldering 2-4 sec.)	250°C

Environmental Specifications

Temperature Ranges	
Compensated	0 to 70° C
Operating	-25 to 85° C
Storage	-40 to 125° C
Humidity Limits	0 to 95% RH (non condensing)

Standard Pressure Ranges

Single in Line Packages-SIP

One Port		Two Ports Same Side	Two Ports Opposite Side
Part Number	Operating Pressure	Part Number	Part Number
1 INCH-G-BASIC	0 - 1 "H2O	1 INCH-D1-BASIC	1 INCH-D2-BASIC
5 INCH-G-BASIC	0 - 5 "H2O	5 INCH-D1-BASIC	5 INCH-D2-BASIC
10 INCH-G-BASIC	0 - 10 "H2O	10 INCH-D1-BASIC	10 INCH-D2-BASIC
20 INCH-G-BASIC	0 - 20 "H2O	20 INCH-D1-BASIC	20 INCH-D2-BASIC
30 INCH-G-BASIC	0 - 30 "H2O	30 INCH-D1-BASIC	30 INCH-D2-BASIC

Performance Characteristics for 1 INCH-x-BASIC

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, differential pressure	--	1.0	--	"H2O
Output Span, @ 1 "H2O, note 5	4.0	7.0	14.0	mV
Offset Voltage @ zero differential pressure	--	--	±10	mV
Offset Temperature Shift (0°C-70°C), note 2	--	±0.1	--	mV
Offset Warm-up Shift, note 3	--	±10	--	uV
Offset Position Sensitivity (1g)	--	±15	--	uV
Offset Long Term Drift (one year)	--	±80	--	uV
Linearity, hysteresis error, note 4	--	0.1	±0.5	%fs

Performance Characteristics for 5 INCH-x-BASIC

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, differential pressure	--	5.0	--	"H2O
Output Span, @ 5 "H2O, note 5	15	22.5	30	mV
Offset Voltage @ zero differential pressure	--	--	±10	mV
Offset Temperature Shift (0°C-70°C), note 2	--	±0.1	--	mV
Offset Warm-up Shift, note 3	--	±10	--	uV
Offset Position Sensitivity (1g)	--	±15	--	uV
Offset Long Term Drift (one year)	--	±80	--	uV
Linearity, hysteresis error, note 4	--	0.1	±0.5	%fs

Performance Characteristics for 10 INCH-x-BASIC

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, differential pressure	--	10.0	--	"H2O
Output Span, @ 10 "H2O, note 5	15	30	45	mV
Offset Voltage @ zero differential pressure	--	--	±10	mV
Offset Temperature Shift (0°C-70°C), note 2	--	±0.1	--	mV
Offset Warm-up Shift, note 3	--	±10	--	uV
Offset Position Sensitivity (1g)	--	±10	---	uV
Offset Long Term Drift (one year)	--	±80	--	uV
Linearity, hysteresis error, note 4	--	0.1	±0.5	%fs

Performance Characteristics for 20 INCH-x-BASIC

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, differential pressure	--	20.0	--	"H2O
Output Span, @ 20 "H2O, note 5	15	30	45	mV
Offset Voltage @ zero differential pressure	--	--	±10	mV
Offset Temperature Shift (0°C-70°C), note 2	--	±0.1	--	mV
Offset Warm-up Shift, note 3	--	±10	--	uV
Offset Position Sensitivity (1g)	--	±5	--	uV
Offset Long Term Drift (one year)	--	±80	--	uV
Linearity, hysteresis error, note 4	--	0.1	±0.5	%fs

Performance Characteristics for 30 INCH-x-BASIC

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, differential pressure	--	30.0	--	"H2O
Output Span, @ 30 "H2O, note 5	15	30	45	mV
Offset Voltage @ zero differential pressure	--	--	±10	mV
Offset Temperature Shift (0°C-70°C), note 2	--	±0.1	--	mV
Offset Warm-up Shift, note 3	--	±10	---	uV
Offset Position Sensitivity (1g)	--	±5	---	uV
Offset Long Term Drift (one year)	--	±80	--	uV
Linearity, hysteresis error, note 4	--	0.05	±0.5	%fs

Specification Notes

NOTE 1: ALL PARAMETERS ARE MEASURED AT 4.5 VOLT EXCITATION, FOR THE NOMINAL FULL SCALE PRESSURE AND ROOM TEMPERATURE UNLESS OTHERWISE SPECIFIED. PRESSURE MEASUREMENTS ARE WITH NEGATIVE PRESSURE APPLIED TO THE TOP-PORT (THE ONLY PORT FOR THE SINGLE PORT) CONFIGURATION.

NOTE 2: SHIFT IS RELATIVE TO 25°C.

NOTE 3: SHIFT IS WITHIN THE FIRST HOUR OF EXCITATION APPLIED TO THE DEVICE.

NOTE 4: MEASURED AT ONE-HALF FULL SCALE RATED PRESSURE USING BEST STRAIGHT LINE CURVE FIT.

NOTE 5: THE VOLTAGE ADDED TO THE OFFSET VOLTAGE AT FULL SCALE PRESSURE.

Pressure Response: for any pressure applied the response time to get to 90% of pressure applied is typically less than 100 useconds.

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